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The Importance of Indigenous Languages: An Investigation of Sense of Belonging and Mental Health Among Students and Non-Students

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Alanah Astehtsi Otsistohkwa (Morningstar) Jewell (she/her) is a mixed French-First Nations artist. She is Bear Clan from Oneida Nation of the Thames, grew up off-reserve, and currently lives in Kitchener, Ontario. Alanah is an illustrator, painter, and muralist, and organizes local Indigenous Art Markets through @IAmKitchener on Instagram. She received an Honours BA in Sociology from Wilfrid Laurier University, and had dreams of attending law school or pursuing a Masters degree in the years following graduation. However, life took a turn when she decided to pursue art as a hobby in 2019; she quickly developed a love for creating and felt that she could pursue art part-time. Illustrating and painting soon became her life work, and through this she has been able to connect with other Indigenous creators, participate in community, and express culture, love, and connection through her art.

ABOUT INDSPIRE

Indspire is an Indigenous national registered charity that invests in the education of Indigenous people for the long-term benefit of these individuals, their families and communities, and Canada. With the support of its funding partners, Indspire disburses financial awards, delivers programs, and shares resources with the goal of improving educational outcomes for First Nations, Inuit, and Métis students. Through Indspire's education offerings, we provide resources to students, educators, communities, and other stakeholders who are committed to improving success for Indigenous youth. In 2021-2022, Indspire awarded over $23 million through 6,612 bursaries and scholarships to First Nations, Inuit, and Métis youth, making it the largest funder of Indigenous post-secondary education outside the federal government.

ABOUT THE RESEARCH KNOWLEDGE NEST

The *Indspire Research Knowledge Nest* is the first Indigenous research program of its kind in Canada. With data analysis skills rapidly becoming critical to economic success, the Research Knowledge Nest is poised to seize this exciting opportunity to foster Indigenous engagement and leadership in quantitative research and data science roles. The program is guided by an Advisory Committee of researchers, leaders, and key stakeholders who provide direction and input on the development of this important initiative.

Chi-Miigwetch for the hope and encouragement that you all bring.

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INTRODUCTION

Wanting to feel accepted, valued, and respected by others is a common experience otherwise known as having a sense of belonging (Fong et al., 2021; Tachine et al., 2017). It is a sensation that is determined by how connected people feel to others or a social group and their general perception of having social support (Tachine et al., 2017; Neville et al., 2014). People's sense of belonging can vary depending on their identity and the social groups to which they belong (Gopalan and Brady, 2019; Gopalan et al., 2021). For many people, one's social groups are an important part of their identity, and thus shapes who they are (Neville et al., 2014). Having a sense of belonging has also been linked to lower levels of depression and anxiety (Neville et al., 2014). Therefore, it is important that people are able to cultivate a sense of belonging.

For Indigenous people, sense of belonging may refer to their specific and broader Indigenous community, in addition to any other community to which they may belong. For example, for Indigenous people who are also post-secondary students, maintaining both a sense of belonging to one's school community, as well as a sense of belonging to their Indigenous community, may be important to their mental health and well-being. However, most sense of belonging research on Indigenous people has occurred in the context of Indigenous students' belongingness to their post-secondary communities (Neville et al., 2014) rather than their sense of belongingness to their Indigenous community while attending school. For example, having a sense of belonging to a one's post-secondary community can increase GPA (Fong et al., 2021), promote persistence (Gopalan & Brady, 2019; Herkimer, 2021), and encourage a positive self-identity (Purdie et al., 2000).

Having a sense of belonging can also create better mental health outcomes for students, as feelings of belonging to one's school buffers against stress (Gopalan & Brady, 2019; Gopalan et al., 2021). It should also be noted that some research suggests that when Indigenous students go to post-secondary school they are at risk of experiencing "placelessness." This happens when there is no meaningful connection between the student and the academic community, resulting in a low sense of belonging (Joseph & Windchief, 2015). However, a report by Indspire (2021) uncovered that 63% of Indigenous students sampled felt they belonged at their post-secondary institution.

Despite the benefits of fostering a sense of school belonging, if Indigenous students are preoccupied with fitting in at school, their sense of belonging to their Indigenous community may suffer relative to Indigenous people who are not post-secondary students. Indigenous students often must leave their community to pursue post-secondary education, which could also harm their sense of belonging to their Indigenous community and culture (Joseph & Windchief, 2015). Additionally, it is important to look at students' sense of belonging because Indigenous students operate within the education system, which historically was used to separate students from their culture, language, family, and community through residential schools (Herkimer, 2021; Lavallee & Poole, 2010; McIvor, 2020). Existing within a predominately Western institution can result in cultural conflict for Indigenous students, and thus their sense of belonging may differ from other Indigenous persons who are not attending post-secondary school (Herkimer, 2021; Tachine et al., 2017).

Nonetheless, there are a number of strategies that Indigenous students may employ to maintain or bolster their sense of belonging to their Indigenous community while attending school. The literature

on sense of belonging to a broader racial, ethnic, or cultural community suggests that one way to increase Indigenous sense of belonging is through cultural activities and resources (Indspire, 2021; Joseph & Windchief, 2015; Neville et al., 2014). One study found that when Indigenous students participate in cultural activities, they cultivate a higher sense of belonging to their home community (Joseph & Windchief, 2015). Their home provides primary cultural resources, which make them feel connected to their Indigenous community (Joseph & Windchief, 2015). This sense of community is integral to cultivating a sense of belonging (Neville et al., 2014).

Similarly, Indspire (2021) found that students fostered a sense of belonging by maintaining their cultural integrity while away at school, through accessing cultural supports and programming on campus (Indspire, 2021). As such, maintaining cultural integrity can increase an Indigenous person's sense of belonging, and therefore their well-being and mental health. Tachine et al. (2017) defined cultural integrity as the ability to maintain a strong cultural identity through engaging one's culture as an anchor. As such, having a strong sense of identity is also an essential part of feeling a sense of belonging (Purdie et al., 2000; Tachine et al., 2017). Thus, a connection to culture, family, and spirituality are necessary for Indigenous students to feel a sense of belonging to their Indigenous communities (Tachine et al., 2017).

Specifically, one way that Indigenous students may be able to maintain a sense of belonging to their Indigenous community and identity while at school is through language, which is a point that the Truth and Reconciliation Commission's Call to Action #16 recognizes: "We call upon post-secondary institutions to create university and college degree and diploma programs in Aboriginal languages" (TRC, 2015). In fact, Neville et al. (2014) identified shared language as one of their five dimensions of racial-ethnic-cultural belonging for Indigenous people. However, post-secondary institutions typically create a wedge between a student and their ability to access cultural resources, like language (Tachine et al., 2017). This is because in Canada, and many post-secondary institutions, the only officially recognized languages are English and French, both of which are settler-colonial languages (Sterzuk & Fayant, 2016).

Indigenous language courses are not always offered in post-secondary schools, creating a deeper separation between a student and their culture while attending school. However, Indigenous languages are extremely important to Indigenous culture and identity (Sterzuk & Fayant, 2016) and as stated previously, cultural practices are vital to an Indigenous student's sense of belonging. As such, language learning, understanding, knowing, and speaking could be classified as a cultural resource which maintains cultural integrity and identity, and may increase a student's sense of belonging to their Indigenous community which may, in turn, positively impact mental health (Gopalan and Brady, 2019; Gopalan et al., 2021; Neville et al., 2014).

Moreover, from an Indigenous worldview, mental health is holistic and intertwined with history, identity, and language (Lavallee & Poole, 2010). Thus, if Indigenous people and students have a higher sense of belonging as a result of language knowing, they may also consequentially have better mental health outcomes. Improving mental health is important because the effects of colonialism and intergenerational trauma have historically and presently affected the mental health of Indigenous peoples negatively (Herkimer, 2021; Lavallee & Poole, 2010). Therefore, this report will investigate the connections between Indigenous language, sense of belonging to the broader Indigenous community in Canada, and mental health, as a way of breaking cycles of cultural decline and intergenerational trauma.

HYPOTHESES

Based on these findings from the literature, two hypotheses have been proposed regarding the relations between language, sense of belonging, and mental health (see Figure 1). These hypotheses were pre-registered at Open Science Framework (OSF) (*https://osf.io/8wsm9/?view_only=346e3939dc5648458328cfa735fd17c3*).

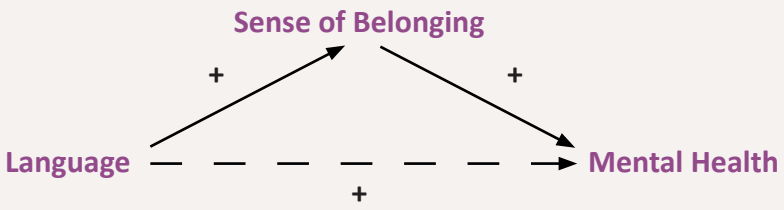
H1: Indigenous post-secondary students who understand or speak an Indigenous language will have a greater sense of belonging to their Indigenous group and group identity, which will then result in a better self-perceived mental health score compared to Indigenous post-secondary students who do not understand or speak an Indigenous language. That is, there will be an indirect effect of sense belonging on the relation between language knowledge and mental health.

H2: Indigenous people (non-students) who understand or speak an Indigenous language will have a greater sense of belonging to their Indigenous group and group identity, which will then result in a better self-perceived mental health score compared to Indigenous people who do not understand or speak an Indigenous language. That is, there will be an indirect effect of sense belonging on the relation between language knowledge and mental health.

Additionally, four exploratory analyses will be conducted in this study:

1. Will sense of belonging to Indigenous group and group identity be higher for Indigenous post-secondary students or for the general Indigenous population?
2. Will self-perceived mental health be better for Indigenous post-secondary students or for the general Indigenous population?
3. Will rates of language knowledge differ between Indigenous post-secondary students and the general Indigenous population?
4. Will the strength of relations between Indigenous language, sense of belonging, and mental health differ between Indigenous post-secondary students and the general Indigenous population?

Figure 1: Proposed associations between independent, dependent, and mediator variables



THE RESEARCH PROCESS

A quantitative approach was taken to investigate the relations between language, sense of belonging, and mental health. The data used in this study were collected by Statistics Canada. Specifically, data resulting from the 2017 Aboriginal Peoples Survey (APS) were analyzed. Unweighted results reflect the portion of the Indigenous population in Canada that was sampled to participate in the APS. The weighted results represent the overall Indigenous population in Canada.

Participants

Participants were divided into two groups: students (those from the APS who are currently attending post-secondary) and non-students (those from the APS who are not currently attending post-secondary). Participant's age, sex, and Indigenous identity were analyzed (see Table 1). From the unweighted student group, 56.2% were between the ages of 19 and 24 (n = 1344) and 59.5% were female. Additionally, students from the sample primarily identified as Métis (n = 1105) and First Nations (n = 1103). These demographic results for unweighted students were also reflected in the weighted student demographics, except that there were more who identified as First Nations (n = 45935.5) than Métis (n = 41259.5) in the weighted findings. From the unweighted non-student group, 36.7% of participants were age 55 and older (n = 3668) and 55.1% were female. Similar to the unweighted student group, they also mainly identified as Métis (n = 4426) and First Nations (n = 4347). These demographic results for unweighted non-students were the same as the weighted demographics for non-students.

Table 1: Demographics of student and non-student groups (weighted and unweighted results)

	Students				Non-Students			
Age	**Unweighted (*n* = 2690)**	**%**	**Weighted (*n* = 90459.57)**	**%**	**Unweighted (*n* = 9983)**	**%**	**Weighted (*n* = 510766.3)**	**%**
Between the ages of 15 and 18	284	11.9%	8191.80	9.1%	60	0.6%	2135.07	0.4%
Between the ages of 19 and 24	1344	56.2%	35828.96	39.6%	1391	13.9%	38517.15	7.5%
Between the ages of 25 and 34	361	15.1%	23394.86	25.9%	1456	14.6%	96335.71	18.9%
Between the ages of 35 and 44	201	8.4%	13360.92	14.8%	1664	16.7%	107273.67	21.0%
Between the ages of 45 and 54	115	4.8%	6940.79	7.7%	1744	17.5%	122339.79	24.0%
Age 55 and over	85	3.6%	2742.25	3.0%	3668	36.7%	144164.90	28.2%
Sex								
Male	967	40.5%	36092.82	39.9%	4484	44.9%	230223.40	45.1%
Female	1423	59.5%	54366.75	60.1%	5499	55.1%	280542.90	54.9%
Indigenous identity								
Single identity – First Nations (North American Indian)	1103	46.2%	45935.50	50.8%	4347	43.5%	235014.35	46.0%
Single identity – Métis	1105	46.2%	41259.51	45.6%	4426	44.3%	252514.82	49.4%
Single identity – Inuk (Inuit)	155	6.5%	2160.72	2.4%	1073	10.7%	16061.30	3.1%
Multiple Aboriginal identities	22	0.9%	795.59	0.9%	107	1.1%	5349.97	1.0%
Aboriginal responses not included elsewhere	5	0.2%	308.26	0.3%	30	0.3%	1825.86	0.4%

Measures

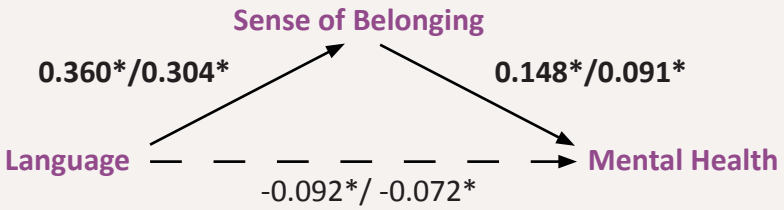
The analysis for this project utilized four measures from the APS. First, Indigenous language knowing was assessed by asking respondents if they understand or speak an Indigenous language (“yes” or “no”). Next, a sense of belonging to the Indigenous community was measured using two variables, which were combined (r= 0.48, p <.001). One variable asked if the respondent feels good about their Indigenous identity (from “strongly disagree” to “strongly agree”), while the other asked if they have a deep sense of belonging to their Indigenous group (from “strongly disagree” to “strongly agree”). Finally, mental health was assessed by asking participants their self-perception of how good their mental health status is (from “poor” to “excellent”). Higher scores indicate a higher or better presence of each variable.

RESULTS

Analyses were conducted using the weighted dataset as this dataset provides the best estimate of relations. Results suggest that Indigenous students reported lower sense of belonging and were less likely to know or understand an Indigenous language relative to non-students. However, students and non-students did not differ in mental health. To test hypotheses 1 and 2, a mediation analysis was conducted. A mediation analysis seeks to identify and explain the mechanism or process that underlies a relationship between variables. In the current context, this means we test a) whether knowing/understanding an Indigenous language is associated with better mental health, and b) whether greater sense of belonging explains this relation. In other words, we sought to uncover whether knowing a language leads to a greater sense of belonging and whether greater sense of belonging, in turn, leads to better mental health. A visual depiction of this model can be seen in Figure 1. Mediation models were tested separately for students and non-students so that we could determine whether the relations between these variables differed between the groups.

Results from the mediation models suggest that for both students and non-students knowing an Indigenous language was associated with a greater sense of belonging, and in turn, a greater sense of belonging was associated with better mental health. However, students and non-students differed in the strength of some of these relations. Specifically, the relations between knowing a language and sense of belonging, and between sense of belonging and mental health, were stronger for students than non-students. These results are also displayed visually below in Figure 3. Additional details regarding analytic strategy and statistics can be found in the Appendix.

Figure 3: Weighted mediation results (by students and non-students)



Note. *Standardized coefficients shown. Coefficients for students before the slash; coefficients for non-students after the slash. Coefficients in bold indicate a significant difference between students and non-students. Dotted line represents the direct effect.* * p < .05.

DISCUSSION

The findings demonstrated there were significant differences in sense of belonging and language scores for students and non-students, but not in mental health scores. In terms of sense of belonging, students scored lower on average than non-students. A possible explanation for this finding is that students may have less access to primary cultural resources than non-students because they have to leave their home communities to pursue post-secondary (Joseph & Windchief, 2015). This, in turn, may make them feel less connected to their Indigeneity and communities. Another possibility is that post-secondary institutions are not providing adequate cultural resources for Indigenous students which makes it difficult for the student to maintain cultural integrity, thus lowering their cultural sense of belonging (Indspire, 2021).

In terms of language knowing and understanding, students also scored lower on this variable than non-students. Since the non-student population is older on average than the student population, there may be a generational difference in language knowing and understanding. It is possible that more of the non-student population grew up knowing and understanding their Indigenous language, as it was not until the later half of the 20th century that Indigenous languages began to decrease drastically due to residential schools (McIvor, 2020). As for students, this younger population may not have had the opportunity to be the recipients of intergenerational language transmission.

Overall, these findings demonstrate that there needs to be more action in cultivating a sense of belonging and creating opportunities for language use for Indigenous students. Future research should continue to investigate why these differences in sense of belonging and language occurred for students versus non-students.

The results of this study also indicated that for both Indigenous non-students and students, understanding or knowing an Indigenous language was associated with higher sense of belonging to one's Indigenous group and identity, which in turn was associated with better self-reported mental health. This is consistent with the predictions based on the literature review. However, these relations between the three variables were especially strong for Indigenous students. Similar to what was previously stated, this could be because fewer students know their Indigenous language than non-students, and thus knowing or understanding their language is a more intentional act of cultural integrity and reconnection than it is for non-students.

However, it should be noted that this model was unable to account for another unidentified variable in which language knowing may be associated with lower mental health, as indicated by a negative total effect for non-students and a non-significant total effect for students. It is well documented that racism can make mental health worse (Paradies, 2018; Paradies & Cunningham, 2012). As such, a proposed explanation for this relation, which should be investigated in the future, is that Indigenous people who understand, know, or speak their Indigenous language may experience more racism, as it is a clear cultural signifier. This, in turn, may negatively affect perceived mental health.

DISCUSSION

All in all, these conclusions demonstrate the importance of Indigenous languages and the need for Indigenous language revitalization programs and efforts generally and on post-secondary campuses in Canada. Learning and understanding language is a way for Indigenous peoples to heal and reclaim their identity. A consequence of that healing is more positive perceived mental health. This is vital not only to the academic and professional lives of Indigenous people, but also to disrupting the legacy of intergenerational trauma and impacts of colonization. When the goal is to increase Indigenous mental health, there is a need to look past traditional Western ideas of healing and instead encompass the physical, mental, emotional, and spiritual (Lavallee & Poole, 2010). It is thus recommended that in conjunction with offering mental health supports to Indigenous students, institutions may incorporate Indigenous languages in post-secondary education as a way to increase cultural integrity and sense of belonging, with the ultimate goal of preventing or mitigating mental health struggles in the future.

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APPENDIX

Additional Analytic and Statistical Details

There were 708 outliers which were greater than three standard deviations from the mean. These outliers were winsorized by converting the scores to the value at three standard deviations from the mean. Assumptions of normality were met for the model. Preliminary analyses were conducted on the student and non-student groups. Tables A1 and A2 illustrate these findings.

Table A1: Weighted correlations and descriptive statistics for students

Variable	M	SD	1	2	3
1. Sense of Belonging	2.82	0.80			
2. Mental Health	3.61	1.09	.12*		
3. Language	0.36	0.48	.36*	-.04	

Note: * p < *.05 and indicates statistical significance*

Table A2: Weighted correlations and descriptive statistics for non-students

Variable	M	SD	1	2	3
1. Sense of Belonging	2.94	0.82			
2. Mental Health	3.66	1.08	.07*		
3. Language	0.41	0.49	.30*	-.04*	

Note: * p < *.05 and indicates statistical significance*

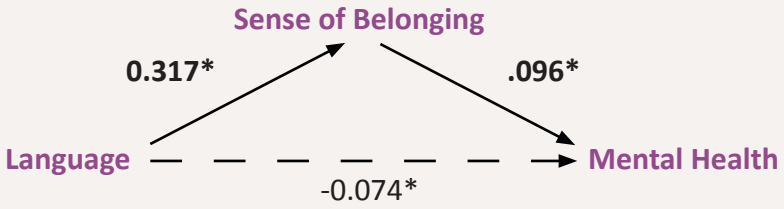
The main results were calculated from the weighted dataset. An independent samples t-test was performed to compare mental health in students and non-students. There was no significant difference in mental health between students (M = 3.61) and non-students (M = 3.66); $t(12056) = -1.89$, $p = 0.06$. Additionally, an independent samples t-test was performed to compare sense of belonging in students and non-students. There was a significant difference in sense of belonging between students (M = 2.82) and non-students (M = 2.94); $t(12068) = -5.49$, $p < .001$, with non-students having the better sense of belonging.

A chi-square independence test was used to examine the relation between Indigenous language (knowing/understanding, not knowing/understanding) and post-secondary attendance (student, non-student). The test showed that students and non-students differed significantly between different

levels of Indigenous language understanding and knowing (X2 (1) = 21.35, $p < .001$). Non-students were more likely to understand or know a language (41%) than what would be expected given no association between these variables. Students, on the other hand, were more likely to not understand or know a language (65%) than what would be expected given no association between these variables.

Simple and multiple groups mediation analyses were performed on the variables. Figures A1 and A2 show the standardized path coefficients. Table A3 shows direct effects (c'-paths), total effects (c-paths), and indirect effects. First, a simple mediation model was conducted across student status (i.e., students and non-students combined). The outcome variable for analysis was mental health. The predictor variable for the analysis was Indigenous language knowing or understanding. The mediator variable for the analysis was sense of belonging. The total effect was significant and negative, indicating that knowing or understanding a language was associated with lower mental health. Additionally, both a- and b-paths were positive and significant. This suggests that knowing a language was associated with greater sense of belonging. Similarly, as sense of belonging increases, so does perceived mental health for the overall Indigenous population (students and non-students combined). As predicted, the indirect effect of language on mental health was found to be statistically significant and positive. This means that when Indigenous people know or understand an Indigenous language, their sense of belonging to the Indigenous community is higher, and thus their perceived mental health outcome is higher. Finally, the direct effect was significant and negative, which indicates that the relation between language and mental health is only partially explained by the sense of belonging variable.

Figure A1: Weighted mediation results (across students and non-students)



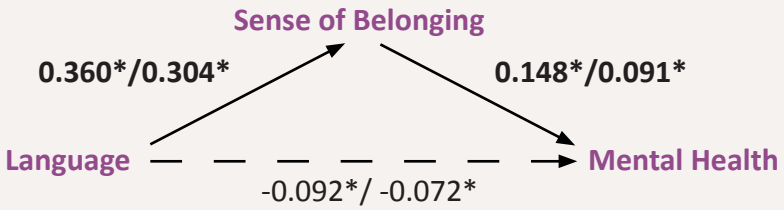
Note: *Standardized coefficients shown. Dotted line represents the direct effect. ** p < *.05.*

APPENDIX: ADDITIONAL ANALYTIC AND STATISTICAL DETAILS

Next, a multiple groups mediation analysis was conducted (see Figure A2 and Table A3), which allowed the calculations to be separated between student and non-student groups. As expected, the indirect effect of language on mental health was significant for both students and non-students. All other path (total effect, direct effect, a-path, b-path) were significant at p <0.001 for both students and non-students, except for the total effect of the student group (p = 0.109).

To compare students and non-students, a multiple group analysis was conducted. Specifically, each path was constrained to equality between the groups and model fit was examined to determine if constraining the paths caused a significant decrement in model fit. If the decrement in model fit is significant, this indicates that the two group significantly differ on the given path. Constraining total effect to equality across the groups resulted in a significantly worse model fit (Δ X2(3) = 12.65, p = 0.005), as the relation between language and mental health was significant for non-students, but not for students. The model with the constrained a-path differed significantly from the unconstrained model (Δ X2(1) = 6.46, p = 0.011). Specifically, knowing a language was more strongly associated with a sense of belonging for students than it was for non-students. The model with the constrained b-path also differed significantly from the unconstrained model, showing that having a sense of belonging was more strongly associated with mental health for students than it was from non-students (Δ X2(1) = 6.18, p = 0.013). After constraining the indirect effect, it was found that the indirect effect also differs between students and non-students (Δ X2(2) = 12.64, p = 0.002). Specifically, the relations between language, sense of belonging, and mental health was stronger for students than non-students. Model fit after constraining the direct effect, however, was not significantly worse than when the model was freely estimated, indicating there is no difference between language and mental health for students and non-students after accounting for sense of belonging (Δ X2(1) = 0.91, p = 0.341).

Figure A2: Weighted mediation results (by students and non-students)



Note: *Standardized coefficients shown. Coefficients for students before the slash; coefficients for non-students after the slash. Coefficients in bold indicate a significant difference between students and non-students. Dotted line represents the direct effect. * p < .05.*

Table A3: Total, indirect, and direct effects

	Across Student Status			Students Only			Non-Students Only		
	B	***SE***	***p***	***B***	***SE***	***p***	***B***	***SE***	***p***
Total Effect	-0.04	0.02	<0.001	-0.04	0.06	0.11	-0.04	0.03	<0.001
Direct Effect	-0.07	0.02	<0.001	-0.09	0.06	<0.001	-0.07	0.03	<0.001
Indirect Effect	0.03	0.01	<0.001	0.05	0.02	<0.001	0.03	0.01	<0.001

Note: *Standardized coefficients shown.*

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